Student Learning and the Role of Information and Communication Technology (ICT) in 21st Century: A Review

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ABSTRACT

In the last few decades, Information Technology has transformed the entire world into a village, known as Global Village, **as proposed by Marshal McLuhan**. ICT has increased its influence in every field like the education sector, defense sector, technology etc. In the 21st century, information and communication technology (ICT) has become an important and integral part of most educational organizations throughout the world.. The use of ICT in classroom teaching and learning processes has become indispensable as it gives teachers and learners the opportunity to operate, store, control and retrieve data in addition to promoting self-regulated and active learning. (**Ali, Haolader & Muhammad, 2013**) Today we are dependent on technology and the role of ICT is increasing day by day **and is believed to be a new normal**. Keeping that in view, the present paper attempts to examine the relationship between information and communication technologies (ICT) and student learning. This conceptual paper is based on secondary information collected from different sources such as books, journal articles, newspapers, reports of various government organizations, nongovernmental organizations and soon.

Keywords: ICT, Student Performance, Learning, Impact, Education.

1. INTRODUCTION

Education plays an important role in society. It is one of the essential requirements for the overall development of human beings. Education starts from the birth of the person and goes on throughout the life of the person. It is a never ending process. Quality education helps in empowering the nation in all aspects. Technology is an essential and effective means to promote personal knowledge. There are many ways to increase the knowledge of the learner, and technology is the most effective way.**(Swati Desai, 2010)** ICT stands for Information Communication Technologies, which includes all technologies for the manipulation of the communication of information. The general definition of ICT includes radio, television, satellite, mobile phones, computers, and the internet and so on. It is basically divided into two groups; traditional ICT namely radio, television and the new ICT like internet, artificial intelligence, robots, intelligent application, telecommunications Etc. Learning through these new ICT tools is also called e-learning. Information and communication technology (ICT) is an essential part of the contemporary world**. (Ubaru, 2005)** stated that it was the mixture of technologies for collecting, storing, processing, communicating and delivering information. Information & Communication Technology is regarded as a mediator or engine for empowerment with deep implications for education, change and development as a whole. (**Akude & Ajuzie, 2011**) stated that "Information Communication Technology such as videos, televisions, multimedia and computer software which combines text, sound, and colorful moving images helps to provide challenging and authentic content that further engage the students in the learning process in an efficient way". (**Tinio, 2003**). ICT helps simplify complex things and brings clarity to understand through simulations that add to real learning situations once more. Therefore, ICT serves as a mediator of active learning and higher order thinking. (**Norman (1993)** stated

that the role of technology in the education field has always been misunderstood. Teachers, planners, researchers etc. all seem to agree on a wide scale that ICT has the potential to have a positive and significant impact on education.

2. ROLE OF ICT IN EDUCATION

Communication is a process in which two or more people exchange ideas, facts, and feelings among themselves in such a way that each person's communication is familiar with the meaning, content and use of this message **(Leagans, 1961)** Information and communication technology has affected the education sector at a rapid pace. The use of various means of information and communication technology in the education sector is increasing. Modernity and reform have flowed in the education system. ICT has an important role in making learners-centered in the process of learner learning. The use of ICT is becoming essential in teacher development and all-round development. The use of ICT is becoming an integral part of daily work to make the work of the education system or educational institution smooth and well organized. ICT is becoming a potentially powerful tool to increase educational opportunities. The use of ICT is making a major difference in the teaching and learning approach of students. Many studies show that students using ICT facilities mostly show learning gains that they do not use, when in fact it serves as a helpful tool. It provides quick and easy access to more comprehensive and current information.

(Yusuf Musibau Adeoye et al., 2013) ICT can also be used to do complex tasks as it provides researchers with a steady avenue for the dissemination of research reports and findings and thy suggested three major reasons for information and communication technology in educationis that it is a tool for addressing challenges in teaching and learning situations; a change agent, and central force in economic competitiveness. As a change agent, it helps to improve the content, method of teaching and overall quality and quantity of teaching and learning process, thereby it also capable to reducing teacher's workload and ensuring inquiry-oriented classrooms. **(Honey and Mandinach, 2003)**.

(Swati Desai, 2010) and (Baishakhi Bhattacharjee et al., 2016) describes the main role of ICT in education sector i.e.:

1. To develop or create the variety of educational services and medium in efficient way.

2. To promote equal opportunities to education and information to all.

3. To develop a system of collecting and disseminating educational information, which further help all the individual to access the education as a whole.

4. To promote technology literacy and distance learning through the use of technology i.e E- content, online classroom Etc.

5. ICT helps teachers and students to communicate properly. So ICT bridges the gap between teacher and students and plays an important role in student evaluation.

Under the 'Digital India' Initiative by Government of India, one of the thrust areas is 'Massive Online Open Courses (MOOCs)'. The Ministry of Human Resource Development, Government of India has embarked on a major initiative which is called 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM), to provide an integrated platform and portal for online courses also covering all higher education, High School and skill sector courses. SWAYAM is an indigenous (Made in India) IT Platform for hosting, developing and creating the Massive Open Online Courses (MOOCs).

3. POSITIVE IMPACT OF ICT ON STUDENT'S LEARNING

(Moursund, 2005) ICT is playing an important role in all areas of human endeavors. It is being used globally to transform ideas into real goals and develop equally into tangible achievement. **(Lopez, 2003)** It has the great potential to add to overall substantial improvements in the educational system However, so far, this capability has been achieved in relatively few Despite ICT, there is a significant impact on the traditional school system. It had provided the innovative mechanism in teaching and learning. The propagation of ICT has given speed to the development of human society, which is being called the information age with the global village. In fact, ICT is becoming an integral part of human daily life. Through ICT, rapid changes are visible in every field. The need for investment in education and skills is being underscored, with a particular focus on ICT skills and research development, making it internationally agreed to make it more effective and value-oriented. ICT has changed the face of research in various disciplines in the modern education world. This has stressed the need for research organizations to connect with each other through an advanced network that is working to connect each part of the world. ICT has begun to provide resources and services to universities, providing services and resources to support education, research and public service missions. ICT is making a significant contribution to the development and implementation of policies and procedures necessary to ensure effective, safe and appropriate use of information resources and services of universities. Today, ICT is providing a knowledge based system under which knowledge acquisition, knowledge incubation, knowledge amplification and knowledge dissemination are being incorporated. It has become clear that information is a major resource that allows for teaching, learning, research and publication.

As we all have been hearing from time immemorial that everything in life is like two sides of a coin, there is always one positive and other negative side of every event. But whether this effect is positive or negative is far removed from the effects of Information Communication Technology (ICT) and cannot be overemphasized. ICT tools are used to find, explore, analyze, exchange and present information responsibly and without discrimination. Perhaps the greatest impact of ICT on individuals has been due to a huge increase

in access to information and services which is increasing with the development of the Internet. ICT is now a useful powerful in the fields of agriculture, engineering, medicine, law, architecture, aviation, commerce, insurance, banking and finance as well as maritime activities etc.

(Yusuf, 2000). Better access to education, e.g. Distance learning and on-line tutorials. New ways of learning, e.g. interactive multimedia and virtual reality. New job opportunities, e.g. Flexible and mobile working, virtual offices and employment in the communications industry.

(Moursund, 2005) ICT carries some of the very powerful aids to translate the theory into practice. Among all the two important advancement in the educationalaids are computer-assisted learning and distance education. These days, computers with Internet connectivity now become common as other household items. By ICT Students often have access to: pure educational which is designed specifically to provide instruction to help the students to learn, communication tools and reference materials including e-mail, web, encyclopedia, books, and other reference materialsetc.

It is very difficult to calculate the extent to which information and communication technology (ICT) has helped in disseminating basic education as most of the uses of this variety have either been at small levels or information about them is not available. At the primary level, there is little evidence that information and communication technology (ICT) has done anything. There is some evidence in higher education and adult training that new educational opportunities are opening up for individuals and groups who are unable to attend traditional universities.

(**Robinson 1991)**The use of new information technology can serve three main functions in the national educational growth. These are to:

a. deliver new and innovative learning experiences to learners;

b. supplement and extend content provided in different forms other than the traditional printed (hard copy); and

c. provide a two-way channel of communication for exchange between teacher and for feedback or for learning, problemsolving, advice, debate, and reports.

4. THE NEGATIVE IMPACT OF ICT ON EDUCATION

The ICT method involves large costs that can harm poor students and educational establishments. This is often referred to as a factor in the digital divide. Students and teachers sometimes need to consider the aspect of technology, rather than content. Of course, social media networking platforms like Facebook, Twitter, YouTube, Instagram can bring a distraction to living and learning in the real world. Large advertising companies and other business platforms take advantage of big data through these networking sites and provide marketing of their various goods and services to the users so that it attracts them and the company gets its benefits possible. Even big business educational institutions are not leaving this marketing effort of big data houses like Google, Microsoft, and Yahoo etc. There are services available on behalf of educational institutions that provide them free internet hosting and data storage space in the cloud in exchange for access to their data so that your educational material can be protected. Performs the analysis and availability for advertising. When the purpose of using ICT is defeated, the attitude of the educational establishment also has a greater impact when the people who run them do not have the knowledge and experience, or often the money, to enable the widespread and effective use of ICT. For their schools, it can also be a disadvantage. In today's era, people are preferring to communicate through online communication rather than actual conversation, due to which individualistic thinking is growing in people and they are becoming introverted.

 Perhaps now they are failing to express their feelings through real conversation or what we really want to say by the use of e-mail or social networking sites. Thus we needed face to face with them to express our true feelings. Social segregation: It is true that the Internet has done the work of reducing the physical distance between people, but it does not mean that they are bringing everyone closer together and emotional distance in many aspects. Definitely increases. Today people are busy in their virtual world and day by day. They continue to forget the real world with family and friends and they remain a formality. Today, children are also spending more time in virtual worlds and they are also adopting wrong ideas which has led to a rapid increase in the number of cybercrimes. Health problems have also increased with the use of ICT gadgets. It is aggravated due to health problems such as headaches, obesity, heart disease, diabetes, repetitive strain injury etc. or continued use due to eye light, incorrect posture / position, neck pain, physical and mental stress etc. Children get stretched from playing games on the internet, doing project work, children get scared to talk with other people after spending more time.

This type of lifestyle lacks physical exercise, which increases our health risk. Today almost all people use gadget-specific technology in some way or the other which is connected to each other and thereby increases the risk of loss of privacy. We use all internet connections. The data is reserved as secure data but still the information is stolen through hacking. When we use online payment, through net banking, people risk losing their money by cheating. They can transfer our money to their account.

Students, however sometimes, feel slothful to attend the class if they can easily get the study material from the web. It will also change their behavior as they become more irresponsible. Let's say the lecturer gives an assignment to the students, they may not understand if they never attend that class. It had created severe problems for the students. Many of them play computer games and use instant messaging, they will

choose online communication rather than having real life conversation with the teachers. For example, when they are having the flu and will not be attending the class or lesson, they might e-mail the lecturer rather than call the teachers. The students will waste time by using ICT better than studying on their work. Overall, the indication on the impact on attainment of learning through ICT remains unpredictable as there are both pro and con on use of ICT and student learning process.

5. CONCLUSION

The advantages of ICT over education outweigh the disadvantages of ICT, so it can be said that ICT has a positive effect on education, but the way the subject is taught nevertheless has a larger impact than the mere use of ICT. . That is, if the teacher does not adopt his methods to make the best use of ICT, then the purpose of using ICT is defeated, as well as the attitude of the educational establishment will have a greater impact when the people who run them have skills There is no knowledge and experience, or often money, to enable widespread and effective use of ICT in their schools, this proves to be a disadvantage. Finally, the attitude of society and government has a large impact on how ICT is perceived and thus how effectively it is used. It is observed from the literature that those countries where the government encourages ICT usage and where the majority of the people use ICT on a daily basis are likely to make better use of ICT in education as well as in the larger society.

The purpose of the present paper is to examine the relationship between the use of information and communication technologies (ICT) and student learning in higher education. This paper aims to summarize the main endings of the literature and to give two complementary explanations. "The main focus is on the indirect effects of ICT on standard explanatory factors. Since a student's learning is mainly mostly by a student's characteristics, educational environment and teachers' characteristics but somewhere ICT may have an impact on these determinants and consequently the outcome of education as a whole ". The differences observed in students' learning are thus more related to the distinguished impact of ICT on standard explanatory factors. "While ICT equipment and use rates are growing very fast in India, the adoption of complementary organizational designs is very slow and differs from one institution to another". This may explain the observed differences in students' achievement.

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